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Mr. Ridway concurs, and says "it differs from *T. vinaceo-rufa* in much deeper general coloration, the very different color of the crissum (rufous instead of purplish vinaceous), and much larger size, especially the bill."

T. ruficauda seems to be a rare species, as there is no specimen in the National Museum or in that of the American Museum of Natural History, New York. It is described as being quite dark above ("brunneo-ardesiaca"), with the hind neck plumbeous; below and on the neck rosy wine color; a spot under the eye and a line behind the eye, violet-black, bordered with white; sides of the neck golden-violet; wing-coverts "ardesiakis"; quills blackish, tail short, outer tail-feathers "fusco-ardesiakis," with a black spot across the middle, the end broadly rufous.

NEW YORK, September 15, 1885.

HELMINTHOPHILA LEUCOBRONCHIALIS.

BY ROBERT RIDGWAY.

WITHOUT having any new evidence to present concerning this perplexing bird in the way of additional specimens, I would like to offer for consideration a hypothesis which it seems to me affords a more plausible explanation of certain aspects of the case than that which suggests hybridism between simply *H. chrysoptera* and *H. pinus* as sufficient to account for the variable 'aberrant' series which has been referred to *H. leucobronchialis*, together with those which represent the so-called *H. lawrencei*.

It has been stated that *H. leucobronchialis* and *H. lawrencei* possess no important original characters. This is certainly true of the latter, which is very obviously a hybrid of the above-named species; but it is not true of the former, which in its pure white throat, in very striking contradistinction to the deep gray or black throat of one and bright yellow throat of the other alleged parent, certainly does possess one very important original character, which it is impossible to conceive can be derived from the crossing of the two species in question.

A supposed strong point which has been urged against the validity of *H. leucobronchialis* as a distinct species, is the circumstance that typical specimens constitute a small proportion of all those obtained, and the suspicious circumstance that each individual of the aberrant majority inclined, in one respect or another, toward *H. pinus*. Only seven of the twenty-two examples which have been recorded (including those of '*H. lawrencei*,' which must be considered in this connection), or not quite one-third, are true *H. leucobronchialis*; but when, instead of taking two elements into consideration (i. e., *H. pinus* and *H. chrysoptera*) we add a third (*H. leucobronchialis* itself), the disproportion becomes far less significant.

In no other way than by assuming that *H. leucobronchialis* is a distinct species, which itself hybridizes with its allies, can we account for the origin of the puzzling series of specimens which have so prejudiced the claims of the bird under consideration to specific rank; and I feel convinced that Mr. Brewster expressed the exact truth when he stated (*cf.* Nuttall Bulletin, III, p. 99) that "the validity of this distinctly characterized species must now be regarded as established," and I feel equally satisfied that the hypothesis of hybridism which he subsequently advanced fails to settle the case as affecting *H. leucobronchialis* itself, however well it may answer for the 'aberrant' specimens which have been wrongly referred to it.

Regarding the very close resemblance between certain specimens of *H. leucobronchialis*, Mr. Brewster observes: "Indeed, it would be difficult to select three individuals of any species which vary so little *inter se*." I have myself seen only the type and the Virginia specimen in the National Museum collection; but I can affirm that the two are as nearly counterparts of one another, so far as details of plumage are concerned, as any two specimens, of any species, that have ever come under my observation.

The following classification of all the specimens* hitherto recorded of both *H. leucobronchialis* (in its widest sense) and '*H. lawrencei*,' expresses my views as to their nature and origin. The arrangement is of course purely hypothetical, but at the same time admits of a much more satisfactory solution of the problem which Mr. Brewster has so carefully discussed than

* A few may possibly have been overlooked.

the theory which supposes *the entire series* to be hybrids of *H. chrysoptera* and *H. pinus* alone, or of their progeny *inter se*.

I. TYPICAL SPECIMENS OF *H. leucobronchialis*.

CHARACTERS. — Throat and cheeks pure white; postocular black or dusky streak very narrow, not involving the auriculars; breast white, or but very faintly tinged with yellow; wing-patch, or bands, yellow.

(1) The type, an adult ♂ from Newtonville, Mass., May 18, 1870. (*Cf.* Brewster, Bull. Nutt. Orn. Club, I, p. 1, pl. i.)

(2) An adult ♂ shot by Christopher D. Wood, near Clifton, Delaware Co., Penn., May 12, 1877. (*Cf.* Trotter, Bull. Nutt. Orn. Club, II, pp. 79, 80.)

(3) An adult ♂ in the collection of the Philadelphia Academy of Natural Sciences, supposed to have been shot by J. G. Bell at Rockland, N. Y., in the spring of 1832. (*Cf.* Trotter, Bull. Nutt. Orn. Club, III, p. 44; IV, p. 59.)

(4) An adult ♂ shot at Wauregan, Conn., May 25, 1875, by Charles M. Carpenter. (*Cf.* Brewster, Bull. Nutt. Orn. Club, III, p. 99.)

(5) An adult ♂ obtained at Suffield, Conn., July 3, 1875, by E. I. Shores. (*Cf.* Brewster, Bull. Nutt. Orn. Club, III, p. 199.)

(6) An adult ♂ in collection of Williams College, Williamstown, Mass., obtained at Hudson, Mass., in May or June, 1858, by Samuel Jillson. (*Cf.* Purdie, Bull. Nutt. Orn. Club, IV, p. 184.)

(7) An adult ♂ shot near Arlington, Va., May 15, 1885, by William Palmer, and by him presented to the National Museum (museum register No. 104,684). (*Cf.* Palmer, Auk, II, p. 304.)

II. PRESUMED HYBRIDS OF *H. leucobronchialis* AND *H. pinus*, OR OF THE FORMER WITH THE CROSS BETWEEN *H. pinus* AND *H. chrysoptera* (= '*H. lawrencei* HERRICK').

CHARACTERS. — Throat white, sometimes faintly tinged with yellow; breast yellow; gray of upper parts tinged with olive-green.

a. Wing-band, or patch, yellow.

(1) An adult ♂ taken at Portland, Conn., by William W. Coe, May 22, 1875. Has "a broad band or blotch" of yellow on the breast, while "the whole dorsal plumage, from the crown, is faintly washed with the same tint." (*Cf.* Purdie, Bull. Nutt. Orn. Club, IV, p. 184.)

(2) An adult ♂ taken at Saybrook, Conn., May 30, 1879, by J. N. Clark. Has "a patch of bright yellow across the breast from the bend of the wings." (*Cf.* Purdie, l. c.)

(3) A young bird (sex unknown) taken by Dr. E. A. Mearns at Highland Falls, N. Y., July 7, 1879 (Coll. W. Brewster, No. 4,668). Specimen number 4 under *H. lawrencei* (No. 4,667, Coll. W. Brewster), said to

be the parent of this specimen. (Cf. Brewster, Bull. Nutt. Orn. Club, VI, p. 221.)

(4) An adult(?), sex not stated, obtained at Sing Sing, N. Y., August 3, 1881, by Dr. A. K. Fisher. Resembles specimen No. 8 (No. 605, Coll. A. K. Fisher), but has the wing-bands "yellow, not white." (Cf. Fisher, Bull. Nutt. Orn. Club, VI, p. 245.)

(5) An adult ♂ (?) obtained in Ottawa Co., Mich., May 25, 1879, by W. A. Gunn. Whole breast bright gamboge yellow, with a sharply defined, truncated anterior outline, but posteriorly extending farthest along the median line, to the upper part of the abdomen; cheeks and chin tinged with light yellow; upper part washed with olive-green. Type of "*H. gunni* Gibbs." (Cf. Gibbs, 'Daily Democrat,' a newspaper of Grand Rapids, Mich., June 1, 1879. — Purdie, Bull. Nutt. Orn. Club, IV, p. 185. — Ridgw. ib., p. 233.)

(6) An adult ♂ taken at Sing Sing, N. Y., August 3, 1881, by Dr. A. K. Fisher (collector's No. 1235). Has "a broad patch of pale yellow on the breast." (Cf. Brewster, Bull. Nutt. Orn. Club, VI p. 219.)

(7) An adult ♀ taken at Sing Sing, N. Y., July 24, 1881, by Dr. A. K. Fisher (collector's No. 1210). Entirely pale greenish yellow beneath; the back is similar to that of *pinus* but the nape is decidedly ashy, and the wing-bands as clearly yellow as in *chrysoptera*; the dusky brown eye-stripe is restricted to the lores and post-orbital spot." (Cf. Brewster, Bull. Nutt. Orn. Club, VI, p. 220.)

b. Wing-bands white.

(8) An adult ♂ collected at Sing Sing, N. Y., August 24, 1879, by Dr. A. K. Fisher (collector's No. 605). "Exhibits a faint wash of lemon yellow on the throat, while a broad space across the breast is deep gamboge yellow, and the wing-bands are pure white." (Cf. Brewster, Bull. Nutt. Orn. Club, VI, p. 219.)

(9) An adult ♀ (?) collected at Nyack, N. J., in May, 1878, by Eugene P. Bicknell; No. 2620, Coll. W. Brewster. "Has the chin decidedly yellow; the throat, cheeks, and a small space on the abdomen white; the remainder of the lower parts gamboge yellow; the wing-bands white; the nape ashy tinged with green; the occiput, back, and wings as purely green as in *H. pinus*." (Cf. Brewster l. c.)

c. Wing-bands mixed white and yellow.

(10) An adult ♂ killed at New Haven, Conn., May 19, 1885, by Harry W. Flint. It "shows a slight suffusion of yellow under each eye and on the chin, as well as a light bar of the same color across the breast . . . the wing-bars are very much restricted, and the white is tinged with yellow, and there is a spot of the same color on the back. (Cf. Sage, Auk, II, p. 304.)

III. PRESUMED HYBRIDS OF *H. leucobronchialis* WITH *H. chrysoptera*.

CHARACTERS. — Entirely white beneath (except on sides), as in *H. leucobronchialis*, but with black auriculars of *H. chrysoptera*.

(1) An adult ♀ (?) obtained at Sing Sing, N. Y., July 24, 1881, by Dr. A. K. Fisher (collector's No. 1208). *Cf.* Brewster, Bull. Nutt. Orn. Club, VI, p. 219.)

(2) An adult ♀ (?) obtained at Sing Sing, N. Y., July 24, 1881, by Dr. A. K. Fisher. (*Cf.* Fisher, Bull. Nutt. Orn. Club, VI, p. 245.)

IV. PRESUMED HYBRIDS BETWEEN *H. chrysoptera* AND *H. pinus*
(= '*H. lawrencei* HERRICK').

CHARACTERS: Black or gray throat and auriculars of *chrysoptera*, with rest of head and the lower parts yellow, as in *pinus*; upper parts olive-green as in *pinus*. Wing-bands yellow or white.

a. Wing-bands white.

(1) The type, an adult ♂, obtained at Passaic, N. J., May, 1874, by Harold Herrick. (*Cf.* Herrick, Pr. Phil. Ac. Nat. Sci. 1874, p. 220, pl. 15.)

(2) An adult ♂ from Hoboken, N. J., taken in the spring of 1876. (*Cf.* Herrick, Bull. Nutt. Orn. Club, II, p. 19.)

b. Wing-bands yellow.

(3) An adult ♀ taken at Highland Falls, N. Y., July 7, 1879, by Dr. Edgar A. Mearns (No. 4667, Coll. W. Brewster). This specimen presents nearly the characters that would be looked for in the female of *lawrencei*; the throat and cheek-markings are those of *chrysoptera* (female), while the remainder of the plumage is colored nearly as in *pinus*, the wing-bands, however, are yellow, instead of white, and the back is not purely olive-green." (*Cf.* Brewster, Bull. Nutt. Orn. Club, VI, p. 220.)

ON JUNCO CINEREUS (SWAINS.) AND ITS GEOGRAPHICAL RACES.

BY ROBERT RIDGWAY.

An examination of a very large series (78 specimens) of this species makes apparent some very interesting facts. It shows